

# **TM 11-6625-350-15**

**DEPARTMENT OF THE ARMY TECHNICAL MANUAL**

**OPERATOR'S, ORGANIZATIONAL, FIELD, AND DEPOT  
MAINTENANCE MANUAL**

**TEST SET, RADIO FREQUENCY POWER  
TS-1202/U**



**HEADQUARTERS, DEPARTMENT OF THE ARMY**

**18 APRIL 1960**



TECHNICAL MANUAL  
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## TEST SET, RADIO FREQUENCY POWER TS-1202/U

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# CHAPTER I

## INTRODUCTION

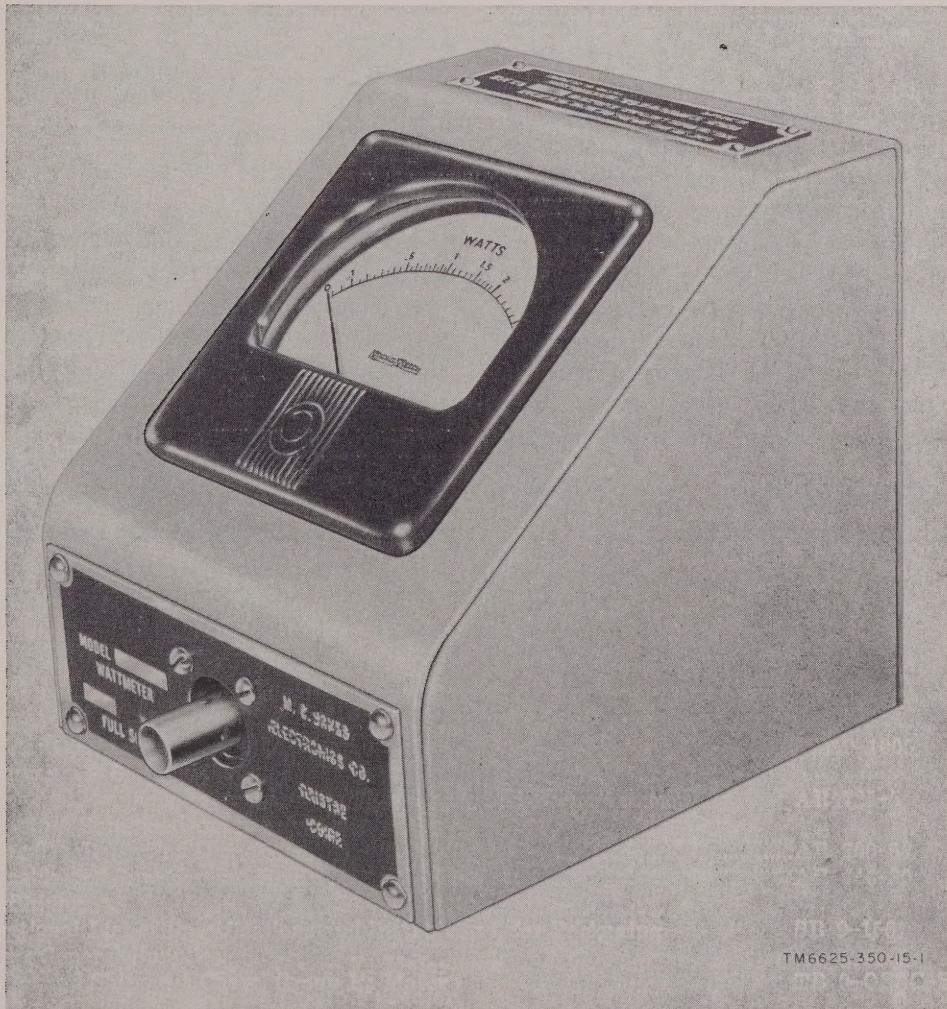
### Section I. GENERAL

#### I. Scope

This manual describes Test Set, Radio Frequency Power TS-1202/U (fig. 1) and covers typical types of operation and maintenance. It also includes packaging and unpacking, inspection, theory, troubleshooting, and repair instructions.

#### 2. Forms and Records

a. *Unsatisfactory Equipment Report.* Fill out and forward DA Form 468 (Unsatisfactory Equipment Report) to the Commanding Officer, U.S. Army Signal Equipment Support Agency, Fort Monmouth, N. J., as prescribed in AR 700-38.



TM6625-350-15-1

Figure 1. Test Set, Radio Frequency Power TS-1202/U.

*b. Report of Damaged or Improper Shipment.* Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), Navy Shipping Guide, Article 1850-4 (Navy), and AFR 71-4 (Air Force).

*c. Preventive Maintenance Form.* Prepare DA Form 11-266 (fig. 4 and 5) (Maintenance Check List for Signal Equipment (Test Equipment)) in accordance with instructions on the form.

*d. Parts List Form.* Forward DA Form

2028 (Recommended Changes to DA Technical Manual Parts List or Supply Manuals 7, 8, and 9) directly to the Commanding Officer, U.S. Army Signal Equipment Support Agency, Fort Monmouth, N. J. for comments on parts listings.

*e. Comments on Manual.* Forward all other comments pertaining to this publication directly to the Commanding Officer, U. S. Army Signal Publications Agency, Fort Monmouth, N. J.

## Section II. DESCRIPTION AND DATA

### 3. Purpose and Use

*a. Test Set, Radio Frequency Power TS-1202/U* is a portable absorption-type radio-frequency (rf) wattmeter which is used as a terminating load and measures rf energy under nonradiating conditions. This equipment can be used over a frequency range of 1 to 1,000 megacycles (mc). The frequency range permits its use in a wide variety of local oscillator, signal generator, low-power transmitter, and exciter power measurements during routine checks and maintenance periods.

*b. When the TS-1202/U is used as a termination for a 50-ohm transmission line, a voltage standing wave ratio (vswr) of less than 1.25 is realized over almost the entire range.*

### 4. Technical Characteristics

Power range .....0 to 4 watts.

Input impedance  $50.5 \pm 2.5$  ohms.  
Frequency range 1 to 1,000 mc.  
Vswr .....1.25 maximum.  
Accuracy ..... $\pm 10$  percent of full scale.  
Weight .....2 pounds.

### 5. Description

The TS-1202/U is a radio frequency wattmeter requiring no power except the signal being measured. It is a single unit consisting of a chassis which houses a meter, a resistor coupling assembly, and a variable resistor. The chassis measures  $4\frac{1}{4}$  inches high,  $4\frac{1}{4}$  inches wide, and  $5\frac{1}{2}$  inches deep. The meter is mounted on the front of the chassis, and is held in position from inside the chassis by four nuts. The input connector protrudes through the vertical portion of the front panel.

## CHAPTER 2

### INSTALLATION AND OPERATING INSTRUCTIONS

#### Section I. SERVICE UPON RECEIPT OF EQUIPMENT

##### 6. Unpacking

a. *Packaging Data.* When packed for shipment, the TS-1202/U and technical manuals are placed in a corrugated carton. The shipping box and its contents are shown in figure 2. The external dimensions of the carton are approximately 6 inches high, 8 inches deep, and 13 inches wide.

b. *Removing Contents.* Remove the TS-1202/U from its carton as follows:

- (1) Open the corrugated carton.
- (2) Remove the moistureproof barrier bag and technical manuals from the corrugated carton.
- (3) Open the moistureproof barrier bag.
- (4) Remove the TS-1202/U.

##### 7. Checking Unpacked Equipment

Perform the following checks on unpacked equipment:

- a. Check the chassis for dents or scratches.
- b. Check for broken glass on meter face.
- c. Check for cracks on meter faceplate.
- d. Check the connector on the front of the chassis for security of attachments.

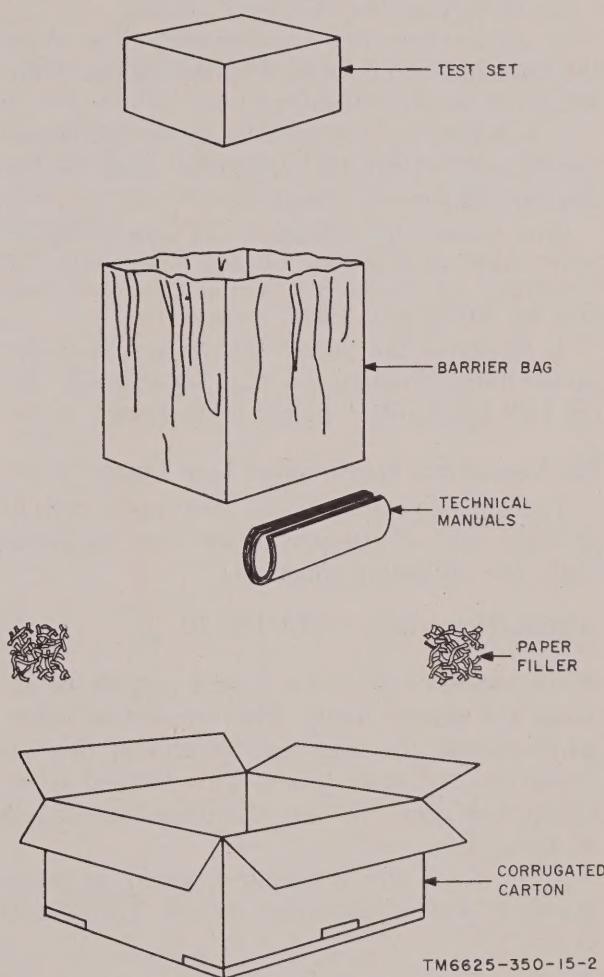


Figure 2. Packaging.

#### Section II. OPERATING INSTRUCTIONS

##### 8. Types of Operation

The TS-1202/U is used as a power measuring device and may also be used as a dummy load. As a dummy load the TS-1202/U provides a 50.5 ohm noninductive load for transmitters and exciters and is capable of dissipating 4 watts of rf energy. The operation of the

TS-1202/U as a power measuring device is described in paragraphs 9 through 11. As a power measuring device the TS-1202/U can be used for measuring the output of small transmitters or exciters, transmission line losses, and power losses produced by insertion devices.

## 9. Measuring Output Power of Low-Power Rf Transmitters or Exciters

**Caution:** Maximum power should not exceed 4 watts.

Proceed as follows when measuring the output of low-power rf transmitters or exciters (rf power source):

- a. Deenergize the rf power source.
- b. Disconnect the transmission line from the transmitter or disconnect the exciter from the final amplifier output.
- c. Connect the TS-1202/U to the rf power source with suitable adapters and 5-ohm constant-impedance connectors.

*Note.* Connect the TS-1202/U as close to the rf power source as possible to minimize cable losses. The TS-1202/U receptacle will accept Connector, Plug, electrical UG-959A/U (BNC, connector).

d. Energize the power source and tune for maximum indication on the TS-1202/U. Record all transmitter meter indications.

## 10. Measuring Transmission Line Losses

Transmission line losses are measured in decibels (db) of attenuation and are calculated with the following formula:

$$\text{Attenuation (db)} = 10 \log_{10} \frac{P_1}{P_2}$$

$P_1$  represents the power output and  $P_2$  represents the power input. The line losses calculated include the combined effects of line attenuation and vswr losses. This method is accurate to within  $\pm 0.5$  db. Calculate these losses as follows:

a. Perform the procedures given in paragraph 9. Power indicated on the TS-1202/U is  $P_1$ .

- b. Deenergize the transmitter.
- c. Disconnect the TS-1202/U from the transmitter.
- d. Connect the transmission line to the transmitter.
- e. Connect the TS-1202/U to the transmission line with suitable adapters and 50-ohm constant-impedance connectors.
- f. Energize the transmitter and tune so that the transmitter values correspond to values recorded in paragraph 9. Power indicated on the TS-1202/U is  $P_2$ .
- g. Calculate the total line attenuation (in db) with the formula given above.

## 11. Measuring Insertion Losses

a. Insertion devices, including connectors, cables, relays, and filters used between a power source and a power output point, are mostly low-loss units and produce only minor power losses. Usually, these devices introduce no appreciable power loss. However, insertion devices in poor condition cause noticeable losses when connected in the circuit under test.

b. Insertion losses are also calculated with the formula given in paragraph 10. Measure the values of  $P_1$  and  $P_2$  as follows:

- (1) Deenergize the power source.
- (2) Connect the TS-1202/U directly to the power source. Energize the power source. The test set indication is  $P_1$ .
- (3) Deenergize the power source.
- (4) Place the insertion device between the power source and test set. Energize the power source. The indication on the test set is  $P_2$ .
- (5) Calculate the insertion loss (par. 10).

## CHAPTER 3

### ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

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#### **12. Scope of Organizational Maintenance**

The maintenance duties performed by the organizational repairman of Test Set, Radio Frequency Power TS-1202/U, are limited to preventive maintenance (par 13). These procedures do not require special tools or test equipment.

#### **13. Preventive Maintenance**

*a.* Preventive maintenance consists of

those procedures which are performed at regular intervals to reduce equipment failure.

*b.* DA Form 11-266 (fig. 3 and 4) is a preventive maintenance checklist which is used by organizational maintenance personnel. Items not applicable to the TS-1202/U are deleted from the figures. Instructions for the use of this form appear on the form.

## MaintenancE CHECK LIST FOR SIGNAL EQUIPMENT

## TEST EQUIPMENT

AB 740-625

100

TEST SET, RADIO FREQUENCY POWER, TS-1202/U

EQUIPMENT SERIAL NUMBER

SOLUTION

This form may be used for a period of one month by using the correct dates and weeks of the month. It is to be used as a Preventive Maintenance check list for Signal equipment in actual use, or for a check on equipment prior to issue.

1. For detailed Preventive Maintenance instructions see:
  - a. The Technical Manual (in *TM 11* series) for the equipment.  
(See DA Pamphlet Number 310-4)
  - b. The Supply Bulletin (*SB 11-100* series) for the equipment.  
(See DA Pamphlet Number 310-4)
  - c. The Department of the Army Lubrication Order.  
(See DA Pamphlet Number 310-4)
2. The following action will be taken by either the Communications Officer/Chief for 1st echelon, or the Inspector for higher echelon
  - a. Enter Equipment Nomenclature and Serial Number.
  - b. Strike out items that do not apply to the equipment.
3. Operator/inspector will enter in the columns entitled CONDITION, on the proper line, a notation regarding the condition, using symbols specified under LEGEND.
4. After operator completes each daily inspection he will initial over the appropriate dates under "Daily Condition for Month", then return form to his supervisor.

- 4705

TYPE OF INSPECTION

DA FORM 11-266  
MAX 7

*Figure 3. DA Form 11-266, pages 1 and 4.*

LEGEND for marking conditions:  
 Satisfactory, ✓  
 Adjustment, Repair or Replacement required, X.  
 Defect corrected, (X)

DAILY CONDITION FOR MONTH OF  
**MAY 1960**

NO.	ITEM	DAILY												ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	2D	3D	ECH-	ELON					
1.	CLEAN DIRT AND MOISTURE FROM EXPOSED SURFACES OF HOUSINGS, CASES, CABINETS, CONTROL PANELS, METER CABLES, METERS, METER WINDOWS, ETC.																									
2.	INSPECT FOR LOOSENESS OF EXTERIOR ITEMS SUCH AS SWIVEL-KNOBS, CONNECTORS AND PLUGS.																									
3.	INSPECT CONTROLS FOR BINDING, SCRAPING, TAP CONTROLS LIGHTLY FOR CUT-OUT DUE TO LOOSE CONTACTS.																									
4.	DURING OPERATION BE ALERT FOR ANY UNUSUAL PERFORMANCE OR CONDITION.																									
PAR. 6 THROUGH H		WEEKLY												CONDITION EACH WEEK												
		1ST	2D	3D	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH	13TH	14TH	15TH	16TH	2D	3D	ECH						
5.	HOT-SHOT-GOODS, PAPER, WIRE, HAND-SCREW MOLLETS FOR BREAK-CUTS, KINKS, DENTS, SERRATION, STRAIN AND FRAYING, THREWS AND SHARP-FASHERS.																									
6.	INSPECT CANVAS AND LEATHER ITEMS FOR FUNGUS-FRADING, TEARS, BROKEN THREWS AND SHARP-FASHERS.																									
7.	HAND-CHECK FOR LOOSENESS OF GEMMERTHERM-THERM-THREWS, HINGES, HANDLES-LATCHES-HINGES.																									
8.	INSPECT FOR LUBRICATION-IN ACCORDANCE WITH APPROPRIATE DATA-SPECIFICATION ORDER.																									
9.	INSPECT-DRY-BATTERIES-FOR-DRIED-LOOSE-TERMINALS-AND-LEAKAGE.																									
10.	INSPECT EXPOSED METAL SURFACES FOR RUST AND CORROSION.																									
11.	INSPECT METERS FOR DAMAGED GLASS AND CASES.																									
ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS		CONDITION												NATURE: CRYSTAL, PLUG-IN-SHOTTER, ETC. DO NOT REMOVE, ROCK OR TWIST TO INSPECT. USE ONLY A DIRECT PRESSURE TO INSURE THE ITEM IS FULLY SEATED.												
12.	INSPECT SEATING OF READILY ACCESSIBLE ITEMS OF A PLUCK-OUT NATURE: CRYSTAL, PLUG-IN-SHOTTER, ETC. DO NOT REMOVE, ROCK OR TWIST TO INSPECT. USE ONLY A DIRECT PRESSURE TO INSURE THE ITEM IS FULLY SEATED.																									
13.	INSPECT FOR CLEARNESS AND SHARPNESS OF SIGHT-TELESCOPES AS-SHOCK-MOUNTS, ANTENNA-MOUNTS-AND-WAVE-GUIDES.																									
14.	INSPECT-RELAY-AND-SWITCH-TERMIS-ASSUMED-TO-OPEN-OR-BURNED-CONTACTS.																									

Figure 4. DA Form 11-266, pages 2 and 3.

## CHAPTER 4

### THEORY

#### 14. General

Test Set, Radio Frequency Power TS-1202/U is a portable terminating device which absorbs and measures up to 4 watts of power from an rf power source. The TS 1202/U is connected to the rf power source through a connector, which is part of resistor coupling assembly Z1. The rf input is attenuated, rectified, and applied across a microammeter.

#### 15. Circuit Description

(fig. 5)

a. The output of the rf power source is applied through connector J1 to a pi-type attenuator network. Pi-type attenuator network R1, R2, and R3 provides a constant 50.5-ohm input impedance for the rf source. This net-

work provides approximately 6 db of attenuation for incident rf waves and approximately 12 db of attenuation for reflected waves. Resistors R1, R2, and R3 are housed in the resistor coupling assembly.

b. The output of the attenuator network is rectified by crystal diode CR1. This diode also provides an additional attenuation of 6 to 8 db. The rectified output of diode CR1 is filtered by capacitor C1 and applied across meter M1 through variable resistor R4. This resistor compensates for different junction resistances of crystal diodes.

c. The meter is a 0- to 200-microampere movement, calibrated in watts of incident power, and is accurate over a wide band of frequencies without the use of correction curves.

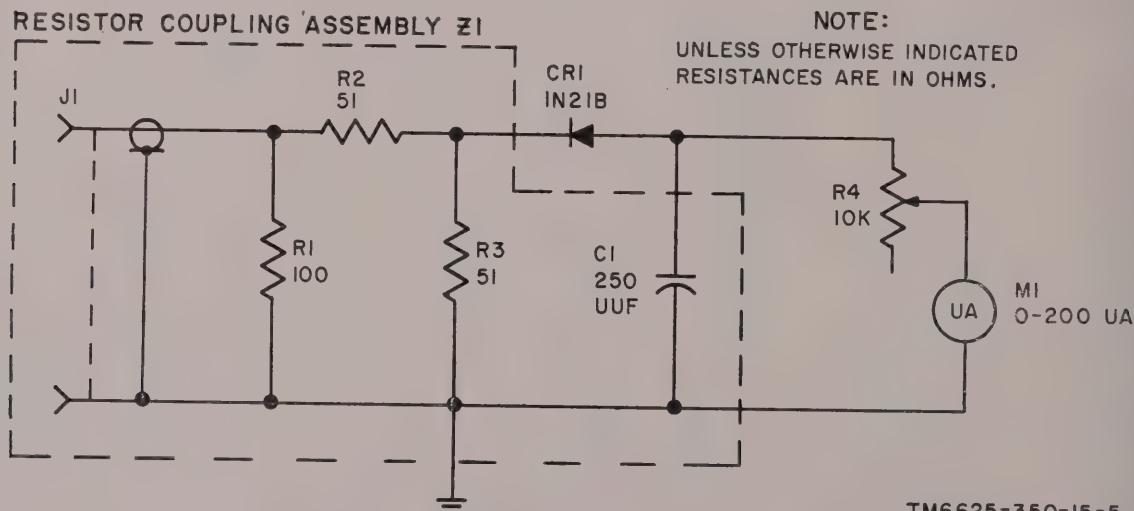


Figure 5. Schematic diagram.

# CHAPTER 5

## FIELD MAINTENANCE INSTRUCTION

### Section I. TROUBLESHOOTING

#### 16. Tool and Test Equipment Required

The following chart lists the tool and test equipment required for troubleshooting Test Set, Radio Frequency Power TS-1202/U. The TS-1202/U is repaired at Field (fourth echelon) or Depot level.

Test equipment	Technical manual
Tool Equipment TK-21/G	
Multimeter AN/URM-105	TM 11-6625-203-12
Test Set, Rectifier, Crystal TS-268/U	TM 11-1242
Wattmeter ME-159/U	

#### 17. Visual Inspection

a. Before troubleshooting the TS-1202/U, a visual inspection of the equipment should be made. A visual inspection aids in locating the fault and sometimes eliminates the need for troubleshooting.

b. Before performing a visual inspection, the TS-1202/U should be checked against another TS-1202/U known to be operative or the ME-159/U or equivalent. This type of check is necessary because erroneous readings may be caused by an impedance mismatch between the TS-1202/U and rf power source. Perform this check as follows:

- (1) Connect the TS-1202/U to the rf power source with suitable adapters and 50-ohm constant-impedance connectors.

**Caution: Maximum power should not exceed 4 watts.**

- (2) Energize the rf power source.
- (3) Tune the rf power source and note the meter readings.
- (4) Record the meter reading of the TS-1202/U
- (5) Deenergize the rf power source and substitute another TS-1202/U or the ME-159/U for the TS-1202/U under test.
- (6) Energize the rf power source and allow enough time for stabilization.

*Note.* Be sure that the meter readings on the rf power source are the same as those noted in (3) above.

- (7) If the readings on the substitute TS-1202/U or ME-159/U are within 10 percent of the readings on the TS-1202/U under test, the TS-1202/U under test is operative. If the readings are not within 10 percent of each other, proceed with the troubleshooting procedures (par. 18).
- c. Perform the visual inspection as follows:
  - (1) Check for dirt or cracked insulation on resistor coupling assembly Z1.
  - (2) Check for a bent needle on the meter.
  - (3) Be sure that the crystal diode is securely seated.
  - (4) Check for broken leads.

#### 18. Troubleshooting Procedures

a. *General.* Troubleshooting procedures are used when the equipment is known to be defective and the visual inspection does not uncover the troubleshooting chart (b below) lists the methods used to isolate a faulty part.

*b. Troubleshooting Chart.*

Symptom	Probable trouble	Correction
No indication or incorrect indication on test set.	Defective input connector or defective resistor in pi-attenuation network.	Measure resistance of J1 between center pin and housing, using an ohmmeter. If meter indication is not $50 \pm 2.5$ ohms, replace resistor coupling assembly (par. 19c).
	Defective crystal diode CR1.	Remove diode from the TS-1202/U (par. 19a) and check the diode with the TS-268/U. Replace if defective.
	Defective variable resistor R4.	Remove one lead from meter M1. Measure resistance of R4, between two end terminals with the AN/URM-105. Resistance should be $10,000 \pm 3,000$ ohms. If indication is correct, measure resistance between center terminal and end terminal while varying resistance. Resistance should vary with no dead spots. If either of the above indications is incorrect replace R4 (par. 19d).
	Defective meter .....	Replace meter (par. 19b).

## Section II. REPAIRS AND CALIBRATION PROCEDURES

### 19. Replacement of Parts

Paragraphs *a* through *d* below cover parts which are replaceable at the field maintenance level.

*a. Replacement of Crystal Diode CR1* (fig 6). Crystal diode CR1 is seated in a crystal holder on one side of resistor coupling assembly Z1. The diode is held in position by a spring contact. Remove the diode as follows:

- (1) Remove the four screws that hold resistor coupling assembly Z1 to the front of the chassis. Remove the assembly.
- (2) Loosen the screw that holds the spring contact to the resistor coupling assembly.
- (3) Slide the spring contact away from the diode.
- (4) Remove the diode.

*Note.* Whenever diode CR1 is replaced, recalibrate the TS-1202/U (par. 20).

#### *b. Replacement of Meter M1.*

- (1) Remove the terminal nuts from the rear of the meter which secure the two leads.
- (2) Tag and remove the leads.
- (3) Remove the four nuts that hold the meter to the chassis.
- (4) Remove the meter.

#### *c. Replacement of Resistor Coupling Assem-*

*bly* (fig. 6). Replace resistor coupling assembly Z1 as follows:

- (1) Remove the four screws that hold the assembly to the front of the chassis.
- (2) Remove the screw that holds the spring contact and terminal lug to the side of the assembly.
- (3) Remove the spring contact and replace the screw.

*d. Replacement of Variable Resistor R4.* Remove variable resistor R4, located at the rear of the chassis, as follows:

- (1) Tag and unsolder all leads.
- (2) Remove the hexagonal head nut and washer that hold R4 to the chassis.
- (3) Remove R4.

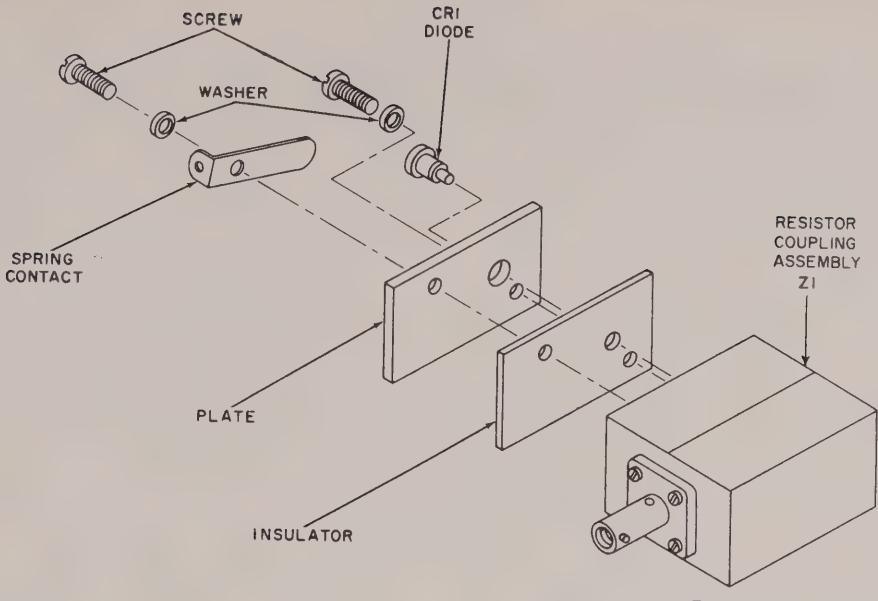
*Note.* Whenever R4 is replaced, recalibrate the TS-1202/U (par. 20).

### 20. Calibration of Test Set

Test Set, Radio Frequency Power TS-1202/U must be recalibrated when diode CR1 or variable resistor R4 is replaced.

*a. Test Equipment Required.* The following test equipments are required for the calibration of the TS-1202/U:

- (1) Wattmeter ME-159/U.
- (2) Radio Transmitter T-30/TRC-8 (TM 11-618A).



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Figure 6. Exploded view.

(3) Rectifier Power Supply PP-115/TRC-8 (TM 11-618A).

b. Calibration Procedures.

(1) *High end of meter scale.* To calibrate the high end of the meter scale for the TS-1202/U, perform steps (a) through (h) below:

- (a) Connect the output of Radio Transmitter T-30/TRC-8 to the input connector of Wattmeter ME-159/U.
- (b) Energize the transmitter.
- (c) Tune the transmitter for a reading of 3.5 watts on the ME-159/U.
- (d) Deenergize the transmitter.
- (e) Disconnect the ME-159/U from the transmitter.
- (f) Replace the ME-159/U with the TS-1202/U.

- (g) Reenergize the transmitter.
- (h) Adjust variable resistor R4 on the TS-1202/U for a reading of 3.5 watts on the meter.

(2) *Low end of meter scale.* To check the low end of the meter scale, perform steps (a) and (b) below:

- (a) Repeat steps (a) through (g) above using 1.5 watts for step (c).
- (b) Observe the reading on the TS-1202/U. This reading should be within 10 percent of 1.5 watts as read on the ME-159/U. If the reading is not within 10 percent, repeat steps (1) and (2) (a) above. If the reading is still not within tolerance, troubleshoot the equipment (par. 18).

## CHAPTER 6

# SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

### 21. Repackaging for Shipment or Limited Storage

The exact procedure for repackaging depends on the material available and the conditions, under which the unit is to be shipped or stored. The procedures outlined below should be adapted whenever necessary. The information concerning the original packaging (par. 6a) will be helpful.

*a. Material requirements.* The following materials are required for packaging the TS-1202/U. For stock numbers of materials, consult SB 38-100.

Material	Quantity
Waterproof tape	6 ft
Corrugated carton	1
Adhesive tape	3 ft
Filler material	2 lb
Barrier bag	1

*b. Packaging.* Package the TS-1202/U for limited storage or shipment as follows:

- (1) Place filler material on the bottom of the corrugated carton.
- (2) Place the TS-1202/U in the barrier bag.
- (3) Seal the barrier bag with waterproof

tape and place the barrier bag in the corrugated carton.

- (4) Fold the technical manuals and place them in the corrugated carton.
- (5) Fill the corrugated carton with filler material.
- (6) Seal the corrugated carton with adhesive tape.

### 22. Authority for Demolition

The destruction procedures (par. 23) will be used to prevent further use of the equipment. Demolition of the equipment will be accomplished only upon the order of the commander.

### 23. Methods of Destruction

Any or all of the methods of destruction given below may be used.

*a. Smash.* Use sledges, axes, hammers, crowbars, and any other heavy tools available to smash the equipment.

*b. Burn.* Use gasoline, kerosene, oil, flamethrowers, or incendiary grenades to burn the equipment and technical manuals.

*Warning:* Be extremely careful with explosives and incendiary devices. Use these items only when the need is urgent.

*c. Explode.* Use grenades, TNT, or firearms, if explosives are necessary.

*d. Dispose.* Bury or scatter the destroyed parts or throw them into nearby waterways.

## APPENDIX I

### REFERENCES

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The following is a list of applicable references available to the unit repairman of Test Set, Radio Frequency Power TS-1202/U.

SB 38-100      Preservation, Packaging, and Packing Materials, Supplies, and Equipment used by the Army.  
Materials, Supplies, and Equipment used by the Army.

TM 11-1242      Crystal Rectifier Test Sets TS-268/U, TS-268A/U, TS-268B/U, TS-268C/U, TS-268D/U, and TS-268E/U.

TM 11-6625-203-12      Operation and Organizational Maintenance: Multimeter AN/URM-105 including Multimeter ME-77/U.

TM 11-618A      Radio Sets AN/TRC-8,-8A and -8B; Radio Terminal Sets AN/TRC-11, -11A, and -11B; Radio Relay Sets AN/TRC-12, -12A, and -12B; Amplifier-Power Supply Group AN/TRA-19.

## APPENDIX II

# MAINTENANCE ALLOCATION CHART FOR TEST SET, RADIO FREQUENCY POWER TS-1202/U

### Section I. INTRODUCTION

#### I. General

a. This section assigns maintenance functions and repair operations to be performed by the lowest appropriate maintenance echelon.

b. The columns in section II maintenance allocation chart, are as follows:

- (1) *Part or component.* This column shows only the nomenclature or standard item name. Additional descriptive data is included only where clarification is necessary to identify the part. Components and parts comprising a major end item are listed alphabetically. Assemblies and subassemblies are in alphabetical sequence with their components listed alphabetically immediately below the assembly listing.
- (2) *Maintenance function.* This column indicates the various maintenance functions allocated to the echelon capable of performing the operation.
  - (a) *Service.* To clean, to preserve, and to replenish fuel and lubricants.
  - (b) *Adjust.* To regulate periodically to prevent malfunction.
  - (c) *Inspect.* To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.
  - (d) *Test.* To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.
  - (e) *Replace.* To substitute serviceable assemblies, sub-assemblies, and parts for unserviceable components.
  - (f) *Calibrate.* To determine, check or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

(g) *Rebuild.* To restore to a condition comparable to new by disassembling the item to determine the condition of its component parts and reassembling it with serviceable, rebuilt, or new assemblies, subassemblies, and parts.

(3) *1st, 2d, 3d, 4th, 5th echelon.* The symbol X placed in columns 3 through 7 indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon marked by X are authorized to perform the indicated operation.

(4) *Tools required.* Code numbers are assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) *Remarks.* Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding columns.

c. Columns in sections III are as follows:

(1) *Tools required for maintenance functions.* This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

(2) *1st, 2d, 3d, 4th, 5th echelon.* A dagger (†) symbol indicates the echelons allocated the facility.

(3) *Tool code.* This column lists the tool code assigned.

(4) *Remarks.* Not used.

## 2. Maintenance by Using Organizations

When this equipment is used by signal service organizations organic to theater headquarters or communication zones to provide theater communications, those maintenance functions allocated up to and including fourth echelon are authorized to the organization

operating this equipment.

## 3. Mounting Hardware

The basic entries of the maintenance allocation chart do not include mounting hardware such as screws, nuts, bolts, washers, brackets, clamps, etc.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PART OR COMPONENT	MAINTENANCE FUNCTION	1st ECH	2d ECH	3d ECH	4th ECH	5th ECH	TOOLS REQUIRED	REMARKS
TEST SET, RADIO FREQUENCY POWER TS-1202/U	service adjust inspect test calibrate rebuild		X		X		6	
CABINET, ELECTRICAL EQUIPMENT	replace				X			
CONTACT, ELECTRICAL	replace		X					
INSULATOR, BUSHING	replace		X					
INSULATOR, PLATE	replace		X					
METER	replace				X			
NUT, PLAIN, CAP	replace				X			
NUT, PLAIN, HEX	replace				X			
PLATE, IDENTIFICATION	replace				X			
PLATE, MOUNTING	replace				X			
RESISTOR COUPLING ASSEMBLY: Z1	replace				X			
RESISTOR, VARIABLE: R4	replace adjust		X		X			
SCREW, DRIVE	replace				X			Substitute available in std hwk.
SCREW, MACHINE	replace				X			
SEMICONDUCTOR, DIODE: CR1	replace test		X		X		1	
TERMINAL LUG	replace				X			Available in std hwk.
WASHER	replace		X					Available in std hwk.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
TOOLS REQUIRED FOR MAINTENANCE FUNCTIONS	1st	2d	3d	4th	5th	TOOL CODE	REMARKS
CRYSTAL RECTIFIER TEST SET TS-268/U				X	X	1	
MULTIMETER AN/URM-105				X	X	2	
RADIO TRANSMITTER T-30/TRC-8				X	X	3	
RECTIFIER POWER SUPPLY PP-115/TRC-8				X	X	4	
WATTMETER ME-159/U				X	X	5	
TOOL AND TEST EQUIPMENT AVAILABLE TO THE REPAIRMAN USER BECAUSE OF HIS ASSIGNED MISSION		X				6	
TOOL EQUIPMENT TK-21/G				X	X	7	

### APPENDIX III

## OPERATOR'S MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST FOR TEST SET, RADIO FREQUENCY POWER TS-1202/U

### I. Scope

a. This appendix lists the item supplied for initial operation. There are no running spares supplied with the equipment. End items of equipment are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning.

b. Columns are as follows:

- (1) *Source, maintenance and recoverability code.* Not used.
- (2) *Federal stock number.* This column lists the 11-digit Federal stock number. In the absence of a Federal stock number an interim number, for example †† LOSe7-1, in the description column indicates a Federal stock number is being processed for assignment. The L number may be used in emergencies to identify items.
- (3) *Designation by model.* Not used.
- (4) *Description.* Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description on the requisition.
- (5) *Unit of Issue.* The unit of issue is the supply term by which the individual item is counted for procurement.

storage, requisitioning, allowances, and issue purposes.

- (6) *Expendability.* Expendable items are indicated by the letter X; non-expendable items are indicated by NX.
- (7) *Quantity authorized.* Under "Items Comprising an Operable Equipment" the column lists the quantity of items supplied for the initial operation of the equipment. Under "Running Spares and Accessory Items" the quantities listed are those issued initially with the equipment as spare parts. The quantities are authorized to be kept on hand by the operator for maintenance of the equipment.
- (8) *Illustration.* The "Item No." column lists the reference designation that appear on the part in the equipment. These same designations are also used on any illustrations of the equipment.

### 2. Comments or Suggestions

Any comments concerning omissions and discrepancies in this appendix will be prepared on DA Form 2028 and forwarded direct to Commanding Officer, U. S. Army Signal Equipment Support Agency, Fort Monmouth, N. J., ATTN: SIGFM/ES-ML.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Source Maintenance and recoverability code	Federal stock number	Designation by model	Description	Unit of issue	Expendability	Authorized quantity	Illustrations	Figure No.	Item No.
Items Comprising an Operable Equipment									
	6625-752-7769		Test Set, Radio Frequency Power TS-1202/U †LOSe7-1	ea	NX	1		1	
Running Spares and Accessory Items									
			There are no running spares or accessory items supplied with this equipment						

By Order of *Wilber M. Brucker*, Secretary of the Army:

L. L. LEMNITZER,  
*General, United States, Army,*  
*Chief of Staff.*

Official:

R. V. LEE,  
*Major General, United States Army,*  
*The Adjutant General.*

Distribution:

*Active Army:*

USASA (2)  
Def Atomic Spt Agcy (5)  
CNGB (1)  
Tech Stf, DA (1)  
    except CSigO (18)  
Tech Stf Bd (1)  
USA Arty Bd (1)  
USA Armor Bd (1)  
USA Inf Bd (1)  
USA AD Bd (1)  
USA Abn & Elct Bd (1)  
USA Avn Bd (1)  
USA ATB (1)  
USCONARC (5)  
US ARADCOM (2)  
US ARADCOM Rgn (2)  
OS Maj Comd (5)  
OS Base Comd (5)  
Log Comd (5)  
MDW (1)  
Armies (5) except  
    First US Army (7)  
Corps (2)  
Div (2)  
Ft Belvoir (5)  
USATC (2)  
Svc Colleges (5)  
Br Svc Sch (5) except  
    USASCS (25)  
Gen Dep (2)  
Sig Sec, Gen Dep (12)  
Sig Dep (19)  
Army Pictorial Cen (2)  
Engr Maint Cen (1)  
USA Ord Msl Comd (3)

USASSA (15)  
USA Sig Pub Agcy (8)  
USA Sig Engr Agcy (1)  
USA Comm Agcy (3)  
USA Sig Eqp Spt Agcy (2)  
USA Sig Msl Spt Agcy (13)  
WRAMC (1)  
AFIP (1)  
AMS (1)  
Ports of Emb (OS) (2)  
Trans Terminal Comd (1)  
Army Terminal (1)  
OS Sup Agcy (1)  
Yuma Test Sta (2)  
USA Elet PG (1)  
Sig Lab (5)  
Sig Fld Maint Shops (3)  
USA Corps (Res) (1)  
JBUSMC (2)  
Units org under fol TOE:  
    11-5 (2)  
    11-6 (2)  
    11-7 (2)  
    11-16 (2)  
    11-55 (2)  
    11-56 (2)  
    11-57 (2)  
    11-98 (2)  
    11-117 (2)  
    11-155 (2)  
    11-500 (AA-AE) (2)  
    11-557 (2)  
    11-587 (2)  
    11-592 (2)  
    11-597 (2)

*NG:* None.

*USAR:* None.

For explanation of abbreviations used, see AR 320-50.





TM 11-6625-350-15 TEST SET, RADIO FREQUENCY POWER TS-1202/U — 1960